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of injection site infections/abscesses which may result in undesirable local tissue reactions.

The plurality of medicaments, if used, may be arranged in any predetermined order. One may arbitrarily select colors to represent each medicament pellet in the stack. For example, one vaccine could be represented by yellow, a second vaccine by blue, a third vaccine by white, a bacterin by green, and a second bacterin by red. These would be stacked in the order shown in FIG. 6 so that looking through the columns 30 in FIG. 5 one would see in this order from top to bottom yellow, blue, white, green, red. In all customer literature accompanying the dosing pellet magazine 28, the same color scheme would be consistently used throughout the description which accompanies the medicaments.

While the description herein has been given particularly with hand-held implant dosing, ballistic implants can be used of the type disclosed in my co-pending application simultaneously filed herewith entitled "MEDICAMENT DOSING BALLISTIC IMPLANT OF IMPROVED ACCURACY", Ser. No. 09,561,224. If a similar color scheme is used with various medicaments, the implant casing itself could incorporate the color scheme as opposed to the payload. In like manner, the packaging could use consistent representations with regard to color being coordinated with specific medicaments. Such a ballistic implant would usually only contain a single medicament. Thus, for example, if an implant casing were yellow, one would know it contained a certain vaccine; if it were blue, one would know it contained another vaccine; red a certain bacterin; and so forth.

Use of the colorants is nonlimiting, but generally they would include FD&C colorants known to be non-harmful to the animals to be vaccinated, substantially inert to the administered biologically active material, and leave no persistent tissue discoloration.

The following were tested and found "non-viricidal" to the principal cattle modified live viruses (MLV) one might include in cattle vaccines. These include: Infectious Bovine Rhinotracheitis (IBR) Virus, Bovine Virus Diarrhea (BVD) Virus, Parainfluenza 3 (PI-3) Virus and Bovine Respiratory Syncytial Virus (BRSV): FD&C Red #40 aluminum lake pigment, FD&C Blue #1 aluminum lake pigment, FD&C Yellow #5 aluminum lake pigment.

These pigments in pellets were also found to leave no visible residues in the subcutaneous tissue of rabbits. Pellets containing FD&C Red #40 left no visible residues in cattle. FD&C Blue #1 and FD&C Yellow #5 have not been tested in cattle to date.

The FD&C Red #40 was accepted as satisfactory by the USDA-CVB (Center for Veterinary Biologics) and the FSIS (Food Safety and Inspection Service). Application will be made shortly to the CVB for acceptance of FD&C Blue #1 and FD&C Yellow #5 based on the data gathered.

It is likely the above actually tested list could be expanded to include other 21 CFR listed FD&C and D&C aluminum lake pigments, as well as other colorants (e.g., iron oxides, phenol red). Those next likely candidates include: FD&C Yellow #6 aluminum lake pigment, FD&C Red #40Y, FD&C Blue #2.

Color candidates may also be used in combination to create other colors (e.g., green).

The list of medicaments includes only veterinary products approved to be administered by the parenteral route. Generally, the products could include antigens related to: Vaccines (Live or Killed Virus), Bacterins and Bacterial Extracts (Killed organisms), Bacterin-Toxoids (Killed

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organisms+modified toxins), Toxoids (Modified toxins devoid of killed bacterial cells), and antibodies related to: Antisera (Serum containing antibodies against an infectious organism). Pharmaceuticals could also be used.

In practice, products could be prepared for all domestic and wild species. Specifically, products could include antigens or antibodies related to the following for cattle: Infectious Bovine Rhinotracheitis (IBR) virus, Bovine Virus Diarrhea (BVD) virus, Parainfluenza 3 (PI3) virus, Bovine Respiratory Syncytial Virus (BRSV), Haemophilus, Pasteurella, Leptospira, Clostridium, Campylobacter, Corynebacterium, Escherichia, Moraxella, Salmonella, Actinomyces, Anaplasmosis, Anthrax, Brucella, Coronavirus, Rotavirus, Staphylococcus, Trichomonas, Fusobacterium.

For dogs, the following could be used: Distemper, Measles, Adenovirus, Parainfluenza, Leptospira, Bordetella, Parvovirus, Coronavirus, Borrelia, Rabies, Salmonella.

For horses, the following could be used: Anthrax, Escherichia, Ehrlichia, Encephalomyelitis, Influenza, Rabies, Rhinopneumonitis, Salmonella, Tetanus, Viral Arteritis.

For cats, the following could be used: Rhinotracheitis, Calicivirus, Panleukopenia, Leukemia, Rabies, Infectious Peritonitis, Microsporium.

For sheep, the following could be used: Clostridium, Corynebacterium, Escherichia, Pasteurella, Salmonella, Anthrax, Bacteroides, Bluetongue, Campylobacter, Chlamydia, Ecthyma, Epididymitis, Rabies, Tetanus.

For swine, the following could be used: Anthrax, Bordetella, Clostridium, Corynebacterium, Escherichia, Encephalomyocarditis, Erysipelas, Actinobacillus, Haemophilus, Leptospira, Mycoplasma, Pasteurella, PRRS, Influenza, Parvovirus, Pseudorabies, Rotavirus, Tetanus, Salmonella, Streptococcus, Servulina, Transmissible Gastroenteritis.

For avian, the following could be used: Bronchitis, Bursal Disease, Mycoplasma, Newcastle Disease, Pasteurella, Reovirus, Bordetella, Coccidiosis, Escherichia, Encephalomyelitis, Erysipelas, Fowl Pox, Haemophilus, Adenovirus, Herpesvirus, Influenza, Laryngotracheitis, Pacheco Disease, Paramyxovirus, Salmonella.

In addition, as earlier explained, the pellets, besides including the active which may be an antigen as above-described, and the colorant, they may contain other materials known in the tableting art. They may include fillers (inert), and fillers which are functional. Inert fillers include the following: Lactose, Mannitol, Dextrate, Dextrose, Fructose, Sucrose, Galactose, Maltose, Sorbitol, Dextran, Dextrin, Calcium carbonate, Calcium sulfate, Dicalcium phosphate. Functional fillers include the following: Alginic acid, Various celluloses (Hydroxypropyl cellulose (HPC), Hydroxypropyl methylcellulose (HPMC), Oxidized cellulose (OC), Microcrystalline cellulose (MCC), Ethyl cellulose (EC), Hydroxyethyl cellulose (HEC), Methyl cellulose (MC), Carboxymethyl cellulose (CMC), Cellulose acetate (CA), Cellulose acetate butyrate (CAB), Cellulose acetate propionate (CAP), Cellulose sodium phosphate (CSP), Cellulose triacetate (CTA), Cellulose acetate phthalate (C-A-P), Hydroxypropyl methylcellulose phthalate (HPMCP), Cellulose acetate trimellitate (C-A-T), Hydroxypropyl methylcellulose acetate succinate (HPMCAS), Sodium carboxymethyl cellulose), Polyanhydrides, Polymethyl methacrylate, Polyactides, Polyglycolides, Carbomer, Gellan gum, Sodium alginate, Acrylic copolymers, Glyceryl monostearate, Zein, Cholesterol, Agarose, Chitosan, Xan-

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than gum, Polyethylene glycol (PEG), Gelatin, Povidone, Natural gum. The pellets may also contain Glidants (Flow Aids), Disintegrants, Lubricants, Adjuvants, Antibiotic Preservatives, etc. Suitable Glidants include: Precipitated silica, Fumed silica. Suitable Disintegrants include: Sodium starch glycolate, Crospovidone, Croscarmellose sodium. Suitable Lubricants include: Stearic acid, Magnesium stearate, Calcium stearate, Sodium stearyl fumarate, Glyceryl monostearate, Triglyceride esters. Suitable Adjuvants include: Aluminum hydroxide, Saponin, Dimethyl dioctadecyl ammonium bromide (DDA bromide), Bacterial extracts. If antibiotics are to be included, pellets may, for example, include the following: Penicillin, Streptomycin, Gentamicin, Polymyxin B, Amphotericin B, Nystatin, Tetracycline, Neomycin.

Preferably, the inert filler is lactose, and the functional filler hydroxypropyl cellulose (3%–30% of the pellet by weight). The glidant preferred is precipitated silica (0.5% of the pellet weight). The most satisfactory lubricant used to date would be calcium stearate at 2% of the pellet weight. Adjuvants include levels from 1%–20% of the pellet weight and may be aluminum hydroxide or DDA bromide. A suitable antibiotic preservative included at a <1% of pellet weight would be gentamicin.

All of the above may also be incorporated into the payload of ballistic implants as previously explained.

What is claimed is:

1. A method of inoculating animals with a plurality of biologically active pellets comprising:
  - providing an implant apparatus for implanting biologically active pellets in an animal which can be operably coupled to a dosing pellet magazine;
  - said dosing pellet magazine comprising:
    - a series of loaded dosing pellet see-through columns, each loaded with a plurality of dosing pellets, each pellet color-coded to represent a particular medication; and thereafter,
    - implanting the plurality of dosing pellets in an animal to be inoculated with a single injection.
2. The method of claim 1 wherein the pellets are loaded with the doses all in the same order.

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3. The method of claim 1 wherein the animal selected is cattle.

4. The method of claim 1 wherein the pellet is from 3% to 30% of functional filler.

5. The method of claim 1 wherein the pellet is 0.5% by weight glidant.

6. The method of claim 1 wherein the pellet is 1%–2% lubricant.

7. The method of claim 1 wherein the pellet is from 1% to 20% adjuvant.

8. The method of claim 1 which includes the antibiotic gentamicin.

9. A dosing pellet magazine, comprising:

a plurality of connected see through pellet dosing columns, each of said columns being loaded with a plurality of dosing pellets, with each pellet color-coded to represent a particular biologically active medication.

10. The dosing pellet magazine of claim 9 wherein the pellets are loaded with the doses all in the same order.

11. The dosing pellet magazine of claim 9 wherein the animal selected is cattle.

12. The dosing pellet magazine of claim 9 wherein the pellet is from 3% to 30% of functional filler.

13. A system of packaging biologically active implants, comprising:

selecting a plurality of biologically active medicaments for implant dosing;

coloring each selected medicament with a unique color to represent the selected medicament;

placing the medicaments in a see through pellet magazine, with the medicaments in a prearranged order;

consistently using the same color scheme for packaging and instructional materials used with the packaged pellet implant doses.

14. The system of claim 13 wherein the pellets are loaded with the doses all in the same order.

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